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Moreno-Stolz

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(54) **LACE JOINING AND EXCHANGING SYSTEM**

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A43C 9/06 (2013.01); **H01Q 1/273** (2013.01);
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Y10T 24/398; A63B 55/007; F16G 11/00;
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,871,370 A 8/1932 Jacques
2,267,802 A 12/1941 Purdy

(Continued)

FOREIGN PATENT DOCUMENTS

DE 200 20 096 U1 3/2001
DE 102005018968 A1 11/2006

(Continued)

OTHER PUBLICATIONS

International Search Report issued May 13, 2011 from International Patent Application No. PCT/EP2010/005347, filed Aug. 31, 2010.

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(57) **ABSTRACT**

The invention relates to the joining together of laces and laces with detachable applications and, in particular, to lace systems (100) for exchanging laces, joining parts especially suitable for this purpose and the attachment of applications to such an exchangeable lace. Such a lace system allows guided laces to be exchanged and comprises a device (110) with a lace guide (112), wherein the device is at least part of a shoe (182), a garment (184), a rucksack (186) or a bag (188). Furthermore, such a lace system comprises a first lace (120), which is guided in the lace guide and has a joining part (122), and a second lace (140), which has a joining part (142), wherein the first and second laces can be joined by means of the joining parts and the joining parts have a diameter that is not substantially any greater than the diameter of the first lace or the lace guide, such that the laces joined by means of the joining parts can be pulled through the lace guide together with the joined joining parts.

10 Claims, 7 Drawing Sheets

